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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/965,631	09/27/2001	Carl Johan Friddle	LEX-0241-USA	2486

7590 06/23/2003

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EXAMINER
NASHED, NASHAAT T

ART UNIT	PAPER NUMBER
1652	

DATE MAILED: 06/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/965,631	Applicant(s) Friddle et al.
	Examiner Nashaat T. Nashed	Art Unit 1652

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *three* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Sep 27, 2001*.

2a) ☐ This action is **FINAL.** 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above, claim(s) *5 and 7* is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-4 and 6* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 5
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Claims 1-7 are pending and under consideration.

Restriction to one of the following inventions is required under 35 U.S.C. 121:

Group I	Claims 1-4 and 6, drawn to nucleic acid encoding the polypeptide of SEQ ID NO: 4, classified in Class 536, subclasses 23.2.
Group II	Claims 4 and 5, drawn to nucleic acid encoding the polypeptide of SEQ ID NO: 2, classified in Class 536, subclasses 23.2.
Group III	Claims 4 and 7, drawn to nucleic acid encoding the polypeptide of SEQ ID NO: 6, classified in Class 536, subclasses 23.2.

The inventions are distinct, each from one another because of the following reasons:

The nucleic acid of Groups I-III are independent chemical entities and require different searches in the patent and non-patent literature.

During a telephone conversation with Peter Safarian on May 8, 2003 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-4 and 6. Affirmation of this election must be made by applicant in replying to this Office action. Claims 5 and 7 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim 4 is objected to because it contains non-elected subject matter. For examination purposes only, the claim is considered to the extent required for the examination of the elected subject matter. Correction is required.

The abstract of the disclosure is objected to because it does not describe the claimed invention or the content of the specification. Correction is required. See MPEP § 608.01(b).

Applicant is reminded of the proper content of an Abstract of the Disclosure.

In chemical patent abstracts for compounds or compositions, the general nature of the compound or composition should be given as well as its use, e.g., "The compounds are of the class of alkyl benzene sulfonyl ureas, useful as oral anti-diabetics." Exemplification of a species could be illustrative of members of the class. For processes, the type reaction,

reagents and process conditions should be stated, generally illustrated by a single example unless variations are necessary.

Complete revision of the content of the abstract is required on a separate sheet.

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

The following is a quotation of the first paragraph of 35 U.S.C. § 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-4 and 6 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific or substantial asserted utility or a well established utility.

Applicants disclose the nucleic acid of SEQ ID NO: 3 which encodes the polypeptide of SEQ ID NO: 4. Based, presumably, on a sequence homology of 40-50% to a metallo-protease, the polypeptide of SEQ ID NO: 4 is sought to be a protease by the applicants. Applicants have not provided any other evidence of any kind to support their contention that the polypeptide of SEQ ID NO: 4 is a protease of any kind. The alleged utility for the polypeptide, i. e., a protease is a non-specific asserted utility because the specification does not describe any protease activity by the polypeptide of SEQ ID NO: 4. There are four major families of proteases: (1) serine protease which comprise two major subfamilies, mammalian serine proteases (trypsin-like) and bacterial serine protease (subtilisin-like); (2) cystine protease (papain-like); (3) aspartic acid protease (pepsin-like); and (4) metalloprotease. Thus, each member of each family and subfamily of protease is produced *in vivo* to carry out specific biological function, i. e., catalyzes the hydrolysis of a specific peptide bond from a specific protein/peptide. The specification fails to disclose any specific biological or chemical function for the polypeptide of SEQ ID NO: 4, its relationship to any disease, or any specific real world use. An example of the stated utility of the nucleic acid is said "the sequences first disclosed in SEQ ID NOS: 1-7 can be utilized in microarrays or other assay format, to screen collection of genetic material from patents who have a particular medical conditions", page 8, lines 13-

16. These utilities are applicable to any nucleic acid. The specification for example does not specify any specific medical condition which is associated with either the nucleic acid of SEQ ID NO: 3 or the polypeptide of SEQ ID NO: 4. Also, utilizing the nucleic acid in a microarray is a non-specific utility and the significance of the presence or absence of the particular nucleic sequence of SEQ ID NO: 3 is not known. The specification only describes non-specific functions for the protein, nucleic acid, and antibodies. The utility of the nucleic acid is said to be used in a method to detect a human gene and to recombinantly make the polypeptide of SEQ ID NO: 4 which neither the gene or the polypeptide associated with any specific use or a disease. The mere fact that the polypeptides disclosed in the specification are called collectively novel human protein (NHP) is indicative that the applicants have no idea about the specific function of the nucleic acid and polypeptide of SEQ ID NO: 3 and 4, respectively, at the time they filed their application. It appears that the main utility of the polypeptide and nucleic acid is to carry out further research to identify a biological or chemical function, and possibly a disease associated with said biological function. Substantial utility defines a "real world" use. Utilities that require or constitute carrying out further research to identify or reasonably confirm a "real world" context of use are not substantial utility. Thus, the claimed invention has no specific or substantial asserted utility.

Applicant is referred to the revised interim guidelines concerning compliance with utility requirement of 35 U.S.C. 101, published in the Official Gazette and also available at www.uspto.gov.

Claims 1-4, and 6 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific or substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

Claims 1-3 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 1-3, they are directed to all possible nucleic acid sequences comprising at least 24 contagious bases of the nucleic acid sequence of SEQ ID NO: 3 (claim 1), or any nucleic acid sequence that hybridizes to SEQ ID NO: 1 under any high stringent conditions regardless of their function. The specification, however, only provides a single representative species of these nucleic acid sequences from human encoding a polypeptide that shares a modest sequence homology to a metalloprotease without identifying actual function protease activity. Moreover, the specification fails to describe additional representative species of these nucleic acid sequences by any identifying structural characteristics or properties other than they encode polypeptides such as that of SEQ ID NO: 4. Since the specification lacks teaching of the function of the polypeptides and/or a structure

function relationship, the specification fails to impart a high predictability of structure for any additional polypeptide and consequently nucleic acid. Given this lack of additional representative species as encompassed by the claim, Applicants have failed to sufficiently describe the claimed invention, in such full, clear, concise, and exact terms that a skilled artisan would recognize Applicants were in possession of the claimed invention.

Claims 1-3 are rejected under 35 U.S.C. § 112, first paragraph, as the disclosure is not enabling for any embodiment. The specification does not enable any person skilled in the art to make and use the invention commensurate in scope with these claims. The claims are broader than the enablement provided by the disclosure with regard to all the nucleic acid comprising at least 24 contagious nucleotides of SEQ ID NO: 3 or those which hybridize to SEQ ID NO: 3 under any stringent hybridization conditions. Factors to be considered in determining whether undue experimentation is required, are summarized *In re* Wands [858 F.2d 731, 8 USPQ 2nd 1400 (Fed. Cir. 1988)]. The Wands factors are: (a) the quantity of experimentation necessary, (b) the amount of direction or guidance presented, (c) the presence or absence of working example, (d) the nature of the invention, (e) the state of the prior art, (f) the relative skill of those in the art, (g) the predictability or unpredictability of the art, and (h) the breadth of the claim.

The nature and breadth of the claimed invention encompasses all the nucleic acid comprising at least 24 contagious nucleotides of SEQ ID NO: 3 or those which hybridize to SEQ ID NO: 3 under any stringent hybridization conditions. This includes all possible nucleic acid encoding insertion, deletion, substitution and combination thereof mutants of SEQ ID NO: 4. The specification provides the nucleic and amino acid sequences of SEQ ID NO: 3 and 4, respectively, and identifies several non-specific utilities for said nucleic and amino acid sequences. While molecular biological techniques and genetic manipulation to make the claimed nucleic acids are known in the prior art and the skill of the artisan are well developed, knowledge regarding a biological or chemical utility for the nucleic and amino acid sequences, the biological source, and method of redesigning the polypeptide of SEQ ID NO: 4 while maintaining any function is lacking. Thus, searching for a nucleic acid comprising 24 contagious oligonucleotide of SEQ ID NO: 3 having any function or any nucleic acid which hybridize under any stringent hybridization conditions to SEQ ID NO: 3 having any function is well outside the realm of routine experimentation and predictability in the art of success is extremely low. The amount of experimentation to identify such a nucleic acid and its function is enormous. Since routine experimentation in the art does not include screening large numbers of nucleic acid libraries prepared from various organisms or a man-made nucleic acid where the expectation of obtaining the desired nucleic acid and determine a real world use for it is unpredictable, the Examiner finds that one skilled in the art would require additional guidance, such as information regarding the biological or chemical function of SEQ ID NO: 4, the biological source for a nucleic acid which contains 24 contagious oligonucleotide of SEQ ID NO: 3, and a method of redesigning the protein of SEQ ID NO: 4 without a loss of

functionality. Without such a guidance, the experimentation left to those skilled in the art is undue.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2 and 3 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The following are the reasons for the rejections:

(a) the phrase "stringent conditions" in claim 2 renders the claim indefinite because the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. The term "stringent conditions" is not defined by the claim or the specification, and one of ordinary skill in the art would not know the exact stringent conditions used by the Applicants to obtain their DNA. Thus, the claim is indefinite. The amendment of the claims to include a specific hybridization conditions would lead to vacating this rejection.

(b) Claim 3 is included in this rejection because it is dependent on rejected claim 2.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claim 1 is rejected under 35 U.S.C. § 102(b) as being anticipated by Mahairas *et al.* (Data Base EST, Accession number, AQ809642, August 10, 1999).

Mahairas *et al.* teach a nucleic acid fragment comprising 38 contagious nucleotide corresponding to residues 2114-2151 of SEQ ID NO: 3.

Claim 1-3 are rejected under 35 U.S.C. § 102(e) as being anticipated by WO 01/98468 [(Yue et al.), December 12, 2001, only the relevant part of the document enclosed].

WO 01/98468 (468) teaches the nucleic acid sequence of SEQ ID NO: 32 encoding the presumed metalloprotease of SEQ ID NO: 11, see Tables 1, 2 (page 88), and 3 (page 96). The nucleic and amino acid sequences of SEQ ID NO: 32 and 11, respectively, appears to be an allelic variants of the nucleic and amino acid sequences of SEQ ID NO: 3 and 4, respectively, of the instant application. The amino acid sequence of SEQ ID NO: 11 of the 468 patent is 99.1% homologous to SEQ ID NO: 4, 947 amino acid matches, 3 mismatches and two gaps. Also, the nucleic acid sequence of SEQ ID NO: 32 of the 468 patent has 77% overall sequence homology to SEQ ID NO: 3 of the instant application with 99.9% best local similarity. Residues 1-2436 of SEQ ID NO: 3 of the instant application are nearly identical to residues 75-2516 of SEQ ID NO: 32 of the 468 patent. Thus, SEQ ID NO: 32 of the 468 patent comprises more the 24 contagious oligonucleotide of SEQ ID NO: 3 (claim 1) and is expected to hybridize to the nucleic acid sequence of SEQ ID NO: 3 under any stringent conditions (claims 2 and 3). The 468 patent claims priority to U. S. provisional application 60/216,821, filed July 7, 2000 in which both SEQ ID NO's: 32 and 11 are fully enabled.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nashaat T. Nashed, Ph. D. whose telephone number is (703) 305-6586. The examiner can normally be reached Monday, Tuesday, Thursday, and Friday from 9:00 a.m. to 5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapura Achutamurthy, can be reached on (703) 308-3804. The fax phone numbers for this Group are (703) 305-3014 and (703)308-4242.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Nashaat T. Nashed, Ph. D.
Primary Examiner